Biotechnology for Food, Plant, and Animal Science CTAG Survey

1. Respondent Information

April 21, 2022

Please complete the survey online by **Thursday, May 5, 2022**.

The purpose of this survey is to gather data on the current Career-Technical Assurance Guide (CTAG) courses in the area of Biotechnology for Food, Plant, and Animal Science and on the courses taught at Ohio public colleges and universities that align to them. These CTAG courses are scheduled to undergo the formal revision process beginning in Fall 2022, which will include the updating of CTAG course learning outcomes as necessary and the possible identification and development of new CTAG courses in this area. This revision process is conducted as a collaboration between the Ohio Department of Education (ODE), the Ohio Department of Higher Education (ODHE), and faculty at both secondary and post-secondary institutions.

The data provided in this survey will help faculty experts and ODHE and ODE staff members to assess the degree to which the current CTAG courses reflect curricula being taught at Ohio public colleges and universities. These data will also enable us to ensure that our CTAG compliance records are up-to-date and that we can most effectively support the students of Ohio.

We ask that **one representative** complete this survey on behalf of your institution as soon as possible, but **no later than Thursday, May 5, 2022**. Please share this survey with the person most familiar with the content and subject matter.

Susan Luken, Sinclair Community College, is the faculty expert who will be compiling and reviewing the data from this survey. Specific questions relevant to the content components of the alignment can be addressed to her at susan.luken@sinclair.edu with a carbon copy to Ben Parrot (bparrot@highered.ohio.gov).

We thank you in advance for your valuable input.

* 1. Demographic Information about the person completing this survey

Name	
Institution	
Department	
Title	
E-mail	
Phone	

* 2. Please indicate the type of institution that you represent

- [ ] University
- [ ] Regional Campus
- [ ] Community College

Biotechnology for Food, Plant, and Animal Science CTAG Survey

2. Biotechnology Curriculum

* 3. Does your institution offer one or more courses in the area of Biotechnology and/or Bioinformatics?

- ◯ Yes
- ◯ No

Biotechnology for Food, Plant, and Animal Science CTAG Survey

3. Biotechnology Curriculum

* 4. Does your institution offer degree programs in the area of Biotechnology?

- ◯ Yes
- ◯ No

4. Biotechnology Curriculum

* 5. Which degree program(s) does your institution offer in the area of Biotechnology?

* 6. In which departments/divisions are these degree programs housed at your institution? Please select all that apply.

- [ ] Biological Sciences
- [ ] Environmental Studies/Science
- [ ] Plant Biology
- [ ] Other (please specify)

Biotechnology for Food, Plant, and Animal Science CTAG Survey

5. CTBTC001

Please review the following information for this currently approved CTAG course:

CTBTC001 – Biotechnology Principles

General Course Description: This course covers the foundation of modern biotechnology. It reviews the history and foundational principles of the science. Students will learn the theoretical basis of DNA, RNA, and protein detection, analysis, manipulation, and engineering. Present and future applications of Biotechnology as they relate to areas such as industrial applications, medicine, environment, and agriculture will be explored.

Credits: 3 Semester Hours

Learning Outcomes:
1. * Describe the history of and evaluate the implications of biotechnology in society, e.g., ethics, medicine, agriculture, environment and industry
2. * Demonstrate an understanding of the process of DNA replication, transcription, translation, and gene regulation mechanisms
3. * Explain the theoretical basis of genome analysis, including Sanger sequencing and current sequencing technologies
4. * Explain the theoretical basis of recombinant DNA technologies and its application
5. * Explain the theoretical basis of gene expression analysis and its application
6. * Explain the theoretical basis of PCR and basic chromatography techniques for separating and identifying nucleic acids, carbohydrates, proteins, and biological metabolites
7. Explore biotechnology fields and career opportunities within each

*Asterisk Indicates Essential Learning Outcomes

7. Are there any skill set changes or wording alterations you believe need to made to the learning outcomes in the above CTAG course? If yes, please explain below.

* 8. Does your institution offer a course that may align to the above CTAG course?

- ◯ Yes
- ◯ No

6. CTBTC001

* 9. What is the name and number of the course at your institution that may align to CTBTC001?

* 10. How many credit hours are awarded for this course?

Biotechnology for Food, Plant, and Animal Science CTAG Survey

7. CTBTC002

Please review the following information for this currently approved CTAG course:

CTBTC002 – Bioinformatics

General Course Description: The last decade has seen an explosion in the amount of genomic data due to the availability of high-throughput sequencing technologies. This course will provide instruction on the databases commonly used to by scientists to mine these data, the terminology used, and the software used. Students will learn how to generate hypotheses and then use the databases and software to test them.

Credits: 3 Semester Hours

Learning Outcomes:
1. * Explain the theoretical basis of Sanger sequencing and current sequencing technologies
2. * Locate the primary databases used for genome, transcriptome, and proteome data
3. * Demonstrate use of commonly used software for gene identification, homology searches, alignments, clustering, and
phylogenetics
4. * Generate a hypothesis and test it using available databases and software
5. Explore biotechnology fields and the career opportunities within each

*Asterisk Indicates Essential Learning Outcomes

11. Are there any skill set changes or wording alterations you believe need to made to the learning outcomes in the above CTAG course? If yes, please explain below.

* 12. Does your institution offer a course that may align to the above CTAG course?

- ◯ Yes
- ◯ No

8. CTBTC002

* 13. What is the name and number of the course at your institution that may align to CTBTC002?

* 14. How many credit hours are awarded for this course?

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9. Additional Comments

15. Are there additional comments that you would like to make about the current CTAG courses in Biotechnology for Food, Plant, and Animal Science?

10. Thank You!

Thank you for completing this survey.

If you have any questions regarding this survey, please contact Ben Parrot at bparrot@highered.ohio.gov.